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United States Environmental Protection Agency
Center for Environmental Research Information
Cincinnati OH 45268

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EPA

TECHNOLOGY TRANSFER

The Bridge Between Research and Use

New Technology Transfer Publications

[use form in back to order by number in parentheses]

Seminar Publication: Corrective Actions-Technologies and Applications (625/4-89/020)

This publication provides information presented at a seminar series designed to address selection and application of technologies suitable for controlling and treating releases of hazardous wastes or their constituents from RCRA treatment, storage and disposal facilities. Engineering considerations are discussed for specific corrective measure technology applications including:

- Containment Options
- Chemical Treatment Processes
- Biological Treatment Processes
- Thermal Processes
- Separation Techniques
- Solidification/Stabilization Processes

Information is also provided on engineering factors to consider when conducting a Remedial Field Investigation in conjunction with a pre-screening approach for potential corrective measure technology selection. The concluding section of the publication addresses implementation strategies for corrective measure technology applications.

Seminar Publication: Solvent Waste Reduction Alternatives (625/4-89/021)

This publication contains edited versions of presentations on this subject made at five seminars in the Spring of 1988. Chapters are included on land disposal regulations and requirements; waste solvent disposal alternatives from various industries such as process equipment cleaning, parts cleaning, and coatings; on-site and off-site reclamation; reuse; and waste minimization. The community's right-to-know of the use of hazardous waste by industry in a community is also addressed. Treatment alternatives are presented also.

Seminar Publication: Requirements for Hazardous Waste Landfill Design, Construction and Closure (625/4-89/022)

This publication contains edited versions of the material presented at ten seminars conducted in 1988 on this subject. Sections are included on design of clay and flexible membrane liners, leachate collector systems, and landfill covers. Construction quality assurance and control is discussed and includes sections on clay and flexible membrane construction procedures. Liner compatibility with wastes is discussed, along with test procedures used to evaluate chemical compatibility. Long-term considerations are discussed, with emphasis on problem areas and unknowns.

Handbook: Guide to Technical Resources for the Design of Land Disposal Facilities(625/6-88/018)

This Handbook has been developed to facilitate the preparation and processing of land disposal permit applications. It directs the regulated community and the regulators to the appropriate EPA technical resource documents, as they prepare or review permits required under PL 480 (RCRA).

States and local governments as well as design engineers requiring information on both hazardous (Subtitle C) and non-hazardous (Subtitle D) waste facilities will quickly recognize what requirements (laws or policy) are to be met, why these requirements are necessary and where to find additional information on disposal facilities. Topics discussed in detail include:

- Foundations
- Dike integrity and slope stability
- Liner systems
- Cover systems
- Run on/run-off controls

While the subjects addressed in this Handbook are those that frequently arise in preparing and reviewing permit applications, the information and references provided may also be useful in designing and operating land disposal facilities, both hazardous and non-hazardous.

Handbook: Guidance on Setting Permit Conditions and Reporting Trial Burn Results (625/6-89/019)

This Handbook provides guidance for establishing operational conditions for incinerators. The document provides a means for state and local agencies to achieve a level of consistency in setting permit conditions that will result in establishment of more uniform permit conditions nationwide. It has been developed to assist permit writers in translating trial burn results into site-specific operational conditions in an incinerator permit.

Contents include a detailed discussion of control parameters, design considerations, and suggested reporting formats. These parameters are presented in the document along with guidance on how to develop permit operating conditions using the trial burn data. The guidance will also assist applicants in planning trial burns to address the key operating parameters that must be measured and emphasize

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the necessity to test "worst-case" operations to enable permit applicants to tailor their proposed operating conditions to the needs of their facility.

This document is part of the Hazardous Waste Incineration Guidance Series prepared by EPA to assist both the applicant and the permit writer in the RCRA process leading to a final operating permit for hazardous waste incinerators.

Handbook: Retrofitting POTWs (625/6-89/020)

This Handbook updates, expands, and replaces previous publication: *Improving POTW Performance Using the Composite Correction Program Approach*. Both the Comprhensive Performance Evaluation (CPE) and CCP phases of the total approach to POTW performance improvement have been modified. Criteria for evaluating stabilization pond systems are now included in the CPE phase; criteria for evaluating/selecting technologies applicable for retrofitting POTWs have been added to the CCP phase.

Report: Injection Well Mechanical Integrity (625/9-89/007)

This report, orgiinally published in 1987, has been updated with new test methods for mechanical integrity testing. Fifteen leak test well designs, testing criteria, and test summaries are included.

A 3-phase research project was conducted by the Robert S. Kerr Environmental Research Laboratory to determine state-of-the-arty methods for mechanical integrity testing of injection wells and to field test specific analyses methods. This document describes the results of mechanical integrity testing in two specially constructed test wells..

Report: Volumetric Tank Testing: An Overview (625/9-89/009)

This 40-page document provides information to aid readers in meeting requirements of the regulations governing underground storage tanks. It is intended for state and local regulators and small tank owners and operators.

Volumetric tank testing is a viable means of monitoring underground storage tanks for leaks. Volumetric testing can meet regulatory standards and is an important tool in minimizing the effects of leaks from underground storage tanks. This document: 1) describes the results of an EPA study that evaluated volumetric tank tests for detecting leaks in tanks; 2) explains the accuracy requirements specified in the regulations, and 3) presents information that will aid the user in selecting a volumetric tank test method that meets these regulations.

Future Technology Transfer Meetings

Workshop Series: Emerging Technologies for Upgrading Existing or Designing New Drinking Water Treatment Facilities

These two-day workshops are sponsored and organized by alocal sections of AWWA and EPA's Regional Offices, as well as the Offices of Drinking Water and Research and Development. They present technical information on proven technologies to encourage their use in either plans for process modification or new construction. Removal processes for lead, radon, volatile organics, synthetic organics and disinfection by-products are discussed along with filtration, disinfection and corrosion control technologies.

These sessions are primarily intended for regional, state and local drinking water regulatory personnel who approve plans for the construction of new or the upgrading of existing drinking water treatment facilities. Consulting engineers and drinking water treatment equipment manufacturers will also find these workshops helpful.

Plans are presently being made to hold two; workshops, one in the East and one in the South East during late August and September, 1989.

There is a small registration fee. Additional information can be obtained by contracting; Jim Smith, USEPA-CERI, 26 W. Martin Luther King Drive, Cincinnati, OH 45268

Seminar Series: Site Characterization For Ground-Water Remediation

These two-day seminars will address the level of detail in site characterization that is necessary to control the certainty and specificity of ground-water remediations. Presentations will cover transport and fate issues and the state-of-the-art techniques that can used to address them. Included in these discussions will be costs, benefits, operational details and limitations of site characterization techniques, as well as ramifications of their use in terms of associated issues, such as the allocation of liability, cost recovery and compliance monitoring.

Topics will include: characterization of water movement in the subsurface; determining the extent and manitude of contamination in the subsurface; characterization of subsurface physiochemical and degradation processes; characterization of spacial and temporal variability of subsurface processes; use of models in site characterization; applications and limitations of in-situ soils remediation; and aquifer restoration - applications and limitations..

There is no registration fee for these seminars. A seminar will be offerred in each EPA Region, October 1989 through February 1990. For further information, contact Carol Grove, USEPA-CERI, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268.

Chicago, IL	October 3-4, 1989
Kansas City, MO	October 5-6, 1989
Denver, CO	Octover 17-18, 1989
Dallas, TX	October 19-20, 1989
Boston, MA	November 7-8, 1989
New York, NY	November 9-10, 1989
Atlanta, GA	January 16-17, 1990
Philadelphia, PA	January 18-19, 1990
Seattle, WA	February 5-6, 1990
San Francisco, CA	February 7-8, 1990

Seminar Series: Fine Pore Aeration Systems

Three two-day seminars addressing fine pore aeration systems for municipal wastewater treatment are scheduled. They will be held in the following locations:

Philadelphia, PA	August 15-16, 1990
Chicago, IL	November 13-14, 1990
San Francisco, CA	November 15-16, 1990

The seminars will cover material developed for a new Technology Transfer manual on Fine Pore Aeration Systems, which will be made available at this year's Water Pollution Control Federation Convention in San Francisco, CA, in October. The manual addresses all aspects of designing and operating fine pore aeration systems. In addition, a chapter is devoted to automated control, another includes extensive case histories of fine pore installations, and another presents methodologies for cost evaluations.

There is no registration fee for these seminars. For further information, contact Denis Lussier, USEPA-CERI, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268.

Seminars: QA/QC Procedures for Hazardous Waste Incineration

Three two-day workshops will address process monitoring, sampling, and analytical procedures for testing and sampling hazardous waste incinerators.

The workshops are primarily intended for RCRA permit writers and permit applicants for hazardous waste incinerators. Others associated with the permitting of these incinerators, such as plant managers, consulting engineers, etc., will also benefit from attendance at these workshops.

The workshops will be held in the following locations:

San Francisco, CA	August 9-10, 1989
Kansas City, MO	August 14-15, 1989
Atlanta, GA	August 17-18, 1989

For further information, content Justice Manning, USEPA-CERI, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268.

Workshop on Risk Assessment, Management and Communication of Drinking Water Contamination

This workshop series is a modified version of a series of 14 previously conducted.

These workshops are sponsored by local sections of AWWA in cooperation with U.S. EPA Regional Offices. Topics include information on health effects of contaminant, an approach to risk assessment, risk communication; abatement of lead, biological contamination, particulates, organics, and radon; as well as corrosion control. Each workshop attendee participates in a hands-on case study designed to illustrate the elements of risk assessment, communication and management.

Participants who can benefit from attending this program include: regional, state and local drinking water regulatory personnel who work in the health and technology areas related to the construction of new or the upgrading of existing drinking water treatment facilities, or who must respond to contamination incidents.

A workshop is scheduled for August 16-17, 1989 in the Boston area; and one is planned for Fall 1989 in the New Orleans area. There is a small registration fee. Additional information can be obtained by contacting: Jim Smith, USEPA-CERI, 26 W. Martin.Luther King Drive, Cincinnati, OH 45268.

Third International Conference on New Frontiers for Hazardous Waste Management

This conference will feature technologies currently being developed to treat hazardous waste materials. The major topics to be addressed include: thermal treatment, physical/chemical treatment, waste minimization, biological treatment, solidification/stabilization, and land disposal. The program will feature scientists and engineers from fourteen countries. Also featured will be 93 exhibitors that provide environmental engineering and consulting services.

The conference is jointly sponsored by the U.S. EPA, American Academy of Environmental Engineers, United Nations Environment Programme, World Federation of Engineering Organizations and NUS Corporation. The conference will be held in Pittsburgh, PA, September 10-13, 1989. The registration fee is $325 if registered before August 25 and $395 after August 25. For further information contact Marilyn Diethorn, NUS Corporation, Park West Two, Pittsburgh, PA 15275 or call at 412-788-1080.

The SITE Program and Information Clearinghouse - Update

In 1986, EPA's Office of Solid Waste and Emergency Response and Office of Research and Development established the Superfund Innovative Technology Evaluation or SITE program. The purpose is to assist technology developers in the evaluation of innovative treatment, measurement and monitoring technologies. Through treatment technology demonstrations, the SITE program seeks to encourage the use of innovative technologies at Superfund and other hazardous waste sites to achieve more permanent protection of human health and the environment.

Under the program, EPA jointly conducts full or pilot-scale technology demonstration and evaluation projects with a developer, usually at a Superfund site. The developer demonstrates the technology, while EPA evaluates performance of the technology, its reliability and costs. In addition, EPA is assisting private industry in developing emerging treatment technologies from the conceptual stage to engineering scale through one- or two-year cost-sharing agreements.

EPA is documenting the SITE demonstration results in reports to be made available to Federal, State and private cleanup managers and other interested parties. EPA prepares two reports concerning each technology field demonstration. The Technology Evaluation Report details the actual field demonstration, and the Applications Analysis Report gives an in-depth discussion of the general performance and applicability of each technology based on data from the demonstration as well as other sources.

The SITE program is in its third year, and there are currently 29 participants in the Demonstration Program, offering technologies that include solvent extraction, soils washing, thermal destruction, in-situ steam and air stripping, biological treatment, and solidification/stabilization. Ten field demonstrations have been completed, and approximately 10 more are scheduled before the end of this calendar year. The first seven emerging technologies projects have been underway for almost a year.

As part of the technology transfer effort, the SITE program is developing an information clearinghouse to collect, synthesize, and disseminate technology performance information. Three components of the clearinghouse are in place:

- A hotline provides callers with up-to-date information on SITE projects, demonstration schedules and the availability of the results, and also refers callers to other sources of information. The number is 800-424-9346 or (FTS) 382-3000 in Washington, DC.
- An electronic bulletin board, part of a planned computerized database network, provides summary information on the SITE projects, demonstration schedules and results. Since we are in the pilot phase, this bulletin board is currently only available to Federal and State hazardous waste cleanup personnel. These personnel may contact Jim Cummings, EPA's Office of Solid Waste and Emergency Response, 202-382-4686 (FTS 382-4506), for information on joining the electronic bulletin board.
- A collection of reports, journals and other documents is housed in the EPA Library's Hazardous Waste Collection. This collection is available at EPA Headquarters and is accessible using onsite personal computers at EPA's 10 regional office and 5 laboratory libraries. SITE documents will be added as they become available.

EPA envisions expanding this Information Clearinghouse to include data generated by other EPA programs and other Federal agencies and State hazardous waste cleanup projects. For more information on the clearinghouse, contact the hotline in Washington, D.C.

The reports listed below are available from the SITE program, and may be obtained from NTIS, 5285 Port Royal Road, Springfield, VA 22161 (703)487-4850.

Technology Evaluation Report, SITE Program Demonstration Test, Shirco Infrared Incineration System, Peak Oil, Brandon, Florida - Volume I (EPA/540/5-88/002a), NTIS Order No. PB89-125991, $21.95.

Technology Evaluation Report, SITE Demonstration Test, Hazcon Solidification, Douglassville, Pennsylvania - Volume I, (EPA 540/5-89/001a), NTIS Order No. PB89-158810, $21.95.

Technology Evaluation Report, SITE Program Demonstration Test, Terra Vac In-Situ Vacuum Extraction System, Groveland, Massachusetts - Volume I, (EPA 540/5-89/003a), NTIS Order No. PB89-192025, $21.95.

Technology Evaluation Report, SITE Program Demonstration Test, Shirco Pilot-Scale Infrared Incineration System, Rose Township, Demode Road Superfund SITE - Volume I (EPA 540/5-89/007a), NTIS Order No. PB89-167902, $21.95.

Technology Evaluation Report: SITE Program Demonstration Test, International Waste Technologies In Situ Stabilization/Solidification, Hialeah, Florida - Volume I (EPA/540/5-89/004a), NTIS Order No. PB89-194161, $21.95.

[Volume II of the above publications containes the technical operating logs, sampling and analytical data,, and quality assurance data, and is also available from NTIS].

Technology Evaluation Report, SITE Program Demonstration Test, The American Combustion Syretron Thermal Destruction System, EPA Combustion Research Facility (EPA/540/5-89/008), NTIS Order No. PB89-167894, $28.95.

The Superfund Innovative Technology Evaluation Program, Progress and Accomplishments FY1988 - A Report to Congress

EPA is required to submit a report to Congress annually on the progress and results of the SITE program. This second report presents the accomplishments during FY 1988 and covers October 1987-December 1988. During this period 5 field demonstrations were completed, 11 additional technology developers were accepted into the Demonstration Program, and the first seven technologies were selected for the Emerging Technologies Program. This Report EPA/540/5-89-009 is available from:

ORD Publications
26 W. MLK Drive
Cincinnati, OH 45268

Supporting the Environmental Research Community: EPA's Office of Exploratory Research

The Office of Exploratory Research (OER) is the primary contact between EPA and the environmental research community. OER has four main goals:

- supporting the environmental research community in its work on fundamental environmental research, thereby promoting a solid foundation of knowledge and a cadre of scientific and technical personnel in the environmental sciences;
- promoting awareness of EPA needs within the environmental research community and to encourage researchers to work on problems of interest to EPA.
- supporting long-range research which will help EPA get "ahead of the curve" in regulatory decision-making; and
- promoting close interaction and mutual awareness among EPA researchers and the environmental research community.

OER has several programs to support environmental research and researchers:

Research Programs

Most of the research supported hy OER is fundamental, long range research that focuses on emerging environmental problem areas or on advanced concepts and techniques in the environmental sciences and engineering.

Research Grants

The research grants program supports investigator-initiated research in environmental science and engineering. Each year the grants program issues a general solicitation which invites proposals on topics in five areas of environmental research: environmental health, environmental biology, environmental engineering, air chemistry and physics, and water chemistry and physics.

Embedded in the general solicitation is the Minority Institution Assistance Program. Under this program, OER provides assistance to applicants from minority institutions who wish to prepare applications for grants. Applications from minority institutions which are recommended for funding by the grant peer review panel, but are not ranked high enough to be supported by the general grants program can be supported from a small fund set aside for this program.

A Request for Applications is issued when EPA is interested in a fairly well-defined research area which can be addressed by a collection of focused studies supported through a grant, or when EPA wishes to explore a new research area to ascertain whether and how to support further research in that area. The research conducted is expected to establish a body of scientific facts with potential use other than establishing the feasibility and desirability of a specific research program.

All grants received from either type of solicitation undergo a rigorous review via standing or ad hoc peer review panels. In general, about one sixth of the grant proposals received are supported by OER. The grants program is currently expanding, with an expected increase in funds from $8.2 million in 1989 to $18.1 million in 1990. The averaqe grant award is for a two to three year period at about $100 thousamd per year. Copies of the solicitation and qrants application kit may be obtained from:

Research Grants Staff
Office of Exploratory Research (RD-675)
U. S. Environmental Protection Aqency
401 M Street, S.W.
Washington, D.C. 20460

Environmental Research Centers (ERC)

The Environmental Centers Program supports interdisciplinary research in eight areas chosen 10 years ago by EPA as sufficiently important to warrant several years of concentrated effort and stable support. The eight centers and their specialties are:

University of Pittsburgh -- environmental epidemiology
Cornell University -- ecosystems research
University of Rhode Island -- marine science
University of Illinois -- advanced control technology
Illinois Institute of Technology -- industrial waste elimination
Rice Oklahoma Oklahoma State -- ground water
Louisiana State University -- hazardous waste
University of California, Los Angeles -- intermedia transport

In 1986, thedecision was made to cotinue the phase-out of the current centers until 1991 and then issue a new center solicitation. EPA's long-term, theoretical research needs are being re-examined and program design options evaluated. When this process is completed, a new solicitation will be published. The competition is expected to take place in 1991.

The budget for the environmental research centers program is $4.5 million in 1989, or approximately $540 thousand per center.

Hazardous Substance Research Centers (HSRC)

In 1989, EPA establishd five university-based research centers across the country to perform lomg term and short-term research, as well as technology transfer activities on topics relating to hazardous substances. EPA partitioned the country into five geographic areas consisting of the States in two adjacent Federal regions. One center was selected for each of these "region-pairs". Although an individual center's research may be universal in scope, it must perform activities which coincide with the stated priorities of the States officially served by the center. Each center comprises a consortium of universities. The lead institution of each center is listed below, withthe center's major focus:

New Jersey Institute of Technology -- incineration, in situ treatment techniques

University of Michigan -- biological treatment of organic contaminants

North Carolina State University -- waste minimization

Kansas State University -- removal of metals, mining waste, and pesticide residues

Stanford -- surface and subsurface contamination

Small Business Innovation Research (SBIR) Program

Federal law requires that 1.25% of EPA's extramural research be devoted to SBIR. In FY 1989, the SBIR budget was about $2,500,000. The SBIR Program funds small businesses with ideas relevant to EPA's mission. It focuses exclusively on projects in control technology or process instrumentation development. Proposals are solicited in the fall of each year for Phase I research. Phase I research consists of feasibility studies which are supported at a level of $50,000. Of these Phase I studies, the best are picked for Phase II studies where actual project development is started. Phase II studies are supported up to a level of $150,000. About half of the Phase I efforts have also been supported as Phase II studies. Results from the SBIR Program are expected to lead to the commercial development of a product or process used in pollution control.

Enhancement Programs

In addition to stpporting environmental research, OER funds programs to stimulate the entry of scientists and engineers into the various fields of environmental research and technology, and to sharpen the knowledge and skills of those already in the field.

Visiting Scientists and Engineers Program (VSEP)

VSEP is intended to attract eminent environmental research scientists and engineers to EPA's laboratories to direct or conduct research in collaboration with EPA's researchers. In January of each year candidates are solicited to serve in full or part-time appointments of one to three years in areas of interest to EPA laboratories. Applications are reviewed by a panel of non-EPA scientists and engineers which recommends candidates to EPA's Assistant Administrator for Research and Development.

Minority Institution Student Fellowship and Summer Intern Program

Under this program, the payment of tuition, fees and books, and a stipend of about $1,200 per year are available for qualified seniors and graduate students at minority institutions to develop careers in the environmental sciences via the study of the physical, biological or computer sciences.

After completion of a fellowship appointment, a summer intern appointment may be offered to persons participating in the fellows program, to work at an EPA research laboratory or in other government or private laboratories conducting

research on topics in environmental science or technology. Support to the summer interns is in the form of a small allowance to cover living costs and transportation to the laboratory of choice.

Environmental Science and Engineering Fellows Program

OER also sponsors an Environmental Science and Engineering Fellows Program, a competitive program administered by OER through American Association for the Advancement of Science (AAAS). Each year, ten postdoctoral to mid-career professionals are selected for a ten week tour of duty during the summer as special research consultants in an EPA Washington program office. The successful candidate can be assigned to work in offices dealing with regulation, research, or enforcement. Applications for these fellowships are solicited by the AAAS in December.

The key contacts for the above programs are:

Research Grants:	Robert Papetti 202 382-7473
Environmental Research Centers:	Karen Morehouse 202 382-5750
Hazardous Substance Research Centers:	Karen Morehouse 202 382-5750
Small Business Innovation Research:	Walter Preston 202 382-7445
Superfund Grants:	Don Carey 202 382-7445
Minority Internship Fellowship Programs:	Virginia Broadway 202 382-7473
Visiting Scientists and Engineers Program:	Alvin Edwards 202 382-7445
Summer Fellows Program:	Robert Papetti 202 382-7473

Table 1. EPA's Environmental Research Centers

Subject	Institution/Center Director	Associated EPA Laboratory Project Officer
Environmental Epidemiology	Univ. of Pittsburgh Bruce Case 412 624-3012	Health Effects Resrach Laboratory Gunther Craun COM: 513 569-7422 FTS: 684-7422
Advanced Environmental Control Technology	Univ. of Illinois (Urbana) Richard Engelbrecht 217 333-3822	Risk Reduction Engineering Laboratory Louis Lefke COM: 513 569-7953 FTS: 684-7953
Industrial Waste Elimination	Illinois Institute of Technology James Patterson 312 567 3535	Risk Reduction Engineering Laboratory Louis Lefke COM: 513 569-7953 FTS: 684-7953
Hazardous Waste	Louisiana State University Louis Thibodeaux 504 388-6770	Risk Reduction Engineering Laboratory Louis Lefke COM: 513 569-7953 FTS: 684-7953
Intermedia Transport	University of California at Los Angeles Yoram Cohen 213 825-8766	Environmental Monitoring and Support Laboratory Joseph Behar COM: 702 798-2100 FTS: 545-2216
Marine and Coastal Ecology	University of Rhode Island Michael Pilson 401 792-6104	Environmental Research Laboratory Jan Prager COM: 401 782-3000 FTS: 838-6000
Ecosystems	Cornell University Leonard Weinstein 607 255-3972	Office of Environmental Processes and Health Effects Michael Slimak COM: 202 382-5950 FTS: 382-5950
Ground Water	Rice University University of Oklahoma Oklahoma State University C. Herbert Ward 713 527-4086	Robert S. Kerr Environmental Research Laboratory Marion Scalf COM: 405 332-8800 FTS: 742-2308

Table 2. EPA's Hazardous Substance Research Centers

Region-Pair	Institution/Center Director	Consortium Partners
1-2	New Jersey Institute of Technology Richard Magee 201/596-3006	MIT, Princeton, Rutgers, Stevens Institute of Technology, Tufts, University of Medicine and Dentistry of NJ
3-5	University of Michigan Walter Weber 313/763-1464	Michigan State University, Howard University
4-6	North Carolina State University Michael Overcash 919/737-2325	University of North Carolina, Texas A&M
7-8	Kansas State University Larry Erickson 913/532-5584	Montana State, Universities of Iowa, Missouri, Montana, Nebraska, Utah
9-10	Stanford University Perry McCarty 415/723-4131	Oregon State University

REQUEST FOR TECHNOLOGY TRANSFER MATERIAL

PROCESS DESIGN MANUALS

Phosphorus Removal (Sept. 1987)	625/1-87/001 ☐
Onsite Wastewater Treatment and Disposal Systems (Oct. 1980)	625/1-80/012 ☐
Land Treatment of Municpal Wastewater (Oct. 1981)	625/1-81/013 ☐
Supplement for Land Treatment of Municipali Wastewater (Oct. 1984)	625/1-81/013a ☐
Dewatering Municipal Wastewater Sludges (Sept. 1987)	625/1-87/014 ☐
Municipal Wastewater Stabilization Ponds (Oct. 1983)	625/1-83/015 ☐
Land Application of Municipal Sludge (Oct. 1983)	625/1-83/016 ☐
Electrostatic Precipitator Operation and Maintenance (Sept. 1985)	625/1-85/017 ☐
Odor and Corrosion Control in Sanitary Sewerage Systems and Treatment Plants (Oct. 1985)	625/1-85/018 ☐
Lime/Limestone FGD Inspection and Performance Evaluation Manual (Oct. 1985)	625/1-85/019 ☐
Fabric Filter Operation and Maintenance (June 1986)	625/1-86/020 ☐
Municipal Wastewater Disinfection (Oct. 1986)	625/1-86/021 ☐
Constructed Wetlands and Aquatic Plant Systems for Municipal Wastewater Treatment (Oct. 1988)	625/1-88/022 ☐

TECHNICAL CAPSULE REPORTS

First Progress Report: Wellman-Lord SO_2 Recovery Process - Flue Gas Desulfurization Plant	625/2-77/011 ☐
Recovery of Spent Sulfuric Acid from Steel Pickling Operations	625/2-78/017 ☐
Fourth Progress Report: Forced-Oxidation Test Results at the EPA Alkali Scrubbing Test Facility	625/2-78/018 ☐
Particulate Control by Fabric Filtration on Coal-Fired Industrial Boilers	625/2-79/021 ☐
Bahco Flue Gas Desulfurization and Particulate Removal System	625/2-79/022 ☐
First Progress Report: Physical Coal Cleaning Demonstration at Homer City, PA	625/2-79/023 ☐
Acoustic Monitoring to Determine the Integrity of Hazardous Waste Dams	625/2-79/024 ☐
Disposal of Flue Gas Desulfurization Wastes: Shawnee Field Evaluation	625/2-80/028 ☐
Adipic Acid-Enhanced Lime/Limestone Test Results at the EPA Alkali Scrubbing Test Facility	625/2-82/029 ☐
Benefits of Microprocessor Control of Curing Ovens for Solvent Based Coatings	625/2-84/031 ☐

SEMINAR PUBLICATIONS

Composting of Municipal Wastewater Sludges	625/4-85/014 ☐
Municipal Wastewater Sludge Combustion Technology	625/4-85/015 ☐
Permitting Hazardous Waste Incinerators	625/4-87/017 ☐
Meeting Hazardous Waste Requirements for Metal Finishers	625/4-87/018 ☐
• Corrective Actions - Technologies and Applications	625/4-89/020 ☐
• Solvent Waste Reduction Alternatives	625/4-89/021 ☐
• Requirements for Hazardous Waste Landfill Design, Construction and Closure	625/4-89/022 ☐

BROCHURES

Environmental Pollution Control Alternatives: Reducing Water Pollution Control Costs - Electroplating	625/5-85/016 ☐
Environmental Pollution Control Alternatives: Centralized Waste Treatment Alternatives - Electroplating	625/5-81/017 ☐
Nitrogen Oxide Control for Stationary Combustion Sources	625/5-86/020 ☐
User's Guide: Emission Control Technologies/Emission Factors for Unpaved Road Fugitive Emissions	625/5-87/022 ☐

HANDBOOKS

Remedial Action at Waste Disposal Sites (Oct. 1985)	625/6-85/006 ☐
Identification/Correction of Typ. Design Deficiencies at Municipal Wastewater Treatment Facilities (Oct. 1982)	625/6-82/007 ☐
Septage Treatment and Disposal (Oct. 1984)	625/6-84/009 ☐
Estimating Sludge Management Costs at Municipal Wastewater Treatment Facilities (Oct. 1985)	625/6-85/010 ☐
Permit Writers Guide to Test Burn Data: Hazardous Waste Incineration (Sept. 1986)	625/6-86/012 ☐
Stream Sampling for Waste Load Allocation Appl. (Sept. 1986)	625/6-86/013 ☐
Control Technologies for Hazardous Air Pollutants (Sept. 1986)	625/6-86/014 ☐
Ground Water (March 1987)	625/6-87/016 ☐
Retrofitting POTWs for Phosphorus Removal in the Chesapeake Bay Drainage Area (Sept. 1987)	625/6-87/017 ☐
• Guide to Technical Resources for the Design of Land Disposal Facilities (Dec. 1988)	625/6-88/018 ☐
• Guidance on Setting Permit Conditions and Reporting Trial Burn Results (Jan. 1989)	625/6-89/019 ☐
• Retrofitting POTWs (July 1989)	625/6-89/020 ☐

INDUSTRIAL ENVIRONMENTAL POLLUTION CONTROL MANUAL

Waste Minimization Opportunity Assessment (July 1988)	625/7-88/003 ☐

SUMMARY REPORTS

Control and Treatment Technology for the Metal Finishing Industry Series: Sulfide Precipitation	625/8-80/003 ☐
Sulfur Oxides Control Technology Series: FGD Dual Alkali Process	625/8-80/004 ☐
Sulfur Oxides Control Tech. Series: FGD Lime/Limestone Processes	625/8-81/006 ☐
Control and Treatment Technology for the Metal Finishing Industry Series: Ion Exchange	625/8-81/007 ☐
Control and Treatment Technology for the Metal Finishing Industry Series: In-Plant Changes	625/8-82/008 ☐
Sulfur Oxides Control Technology Series: FGD Spray Dryer Process	625/8-82/009 ☐
Fine Pore (Fine Bubble) Aeration Systems	625/8-85/010 ☐
Technology Assessment of Sequencing Batch Reactors	625/8-86/011 ☐
Causes and Control of Activated Sludge Bulking and Foaming	625/8-87/012 ☐
Biomonitoring to Achieve Control of Toxic Effluents	625/8-87/013 ☐
Compendium of Technologies Used in Treatment of Hazardous Wastes	625/8-87/014 ☐

EXECUTIVE BRIEFINGS

Protecting Health and Safety at Hazardous Waste Sites	625/9-85/006 ☐
Injection Well Mechanical Integrity	625/9-89/007 ☐
• Experiences in Incineration Applicable to Superfund Site Remediation	625/9-88/008 ☐
• Volumetric Tank Testing: An Overview	625/9-89/009 ☐

ENVIRONMENTAL REGULATIONS AND TECHNOLOGY PUBLICATIONS

The Electroplating Industry	625/10-85/001 ☐
Environmental Regulations and Technology: Use and Disposal of Municipal Wastewater Sludge	625/10-84/003 ☐
Fugitive VOC Emissions in the Synthetic Organic Chemicals Manufacturing Industry	625/10-84/004 ☐
The National Pretreatment Program	625/10-86/005 ☐

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Future Technology Transfer Meetings

Meeting	Title	Date(s)	Location	Contact	Phone No.
Seminar	Site Characterization for Ground-Water Remediation	October 3-4, 1989 October 5-6, 1989 Octover 17-18, 1989 October 19-20, 1989 November 27-28, 1989 November 29-30, 1989 January 16-17, 1990 January 18-19, 1990 February 5-6, 1990 February 7-8, 1990	Chicago, IL Kansas City, MO Denver, CO Dallas, TX Lowell, MA New York, NY Atlanta, GA Philadelphia, PA Seattle, WA San Francisco, CA	Trisha Hasch (registration) Carol Grove (content)	617-648-7811 513-569-7362 FTS 684-7362
Seminar	Fine Pore Aeration Systems	November 13-14, 1989 November 16-17, 1989	Chicago, IL San Francisco, CA	Karen Natsios (registration) Denis Lussier (content)	617-648-7810 513-569-7354 FTS 684-7354
Workshop	Emerging Technologies for Upgrading Existing or Designing New Drinking Water Treatment Facilities	To Be Announced	To Be Announced	Jim Smith	513-569-7355 FTS 684-7355
Seminar	Medical and Institutional Waste Incineration	October 17-18, 1989 November, 1989 December 7-8, 1989 January 25-26, 1990 To Be Announced	Providence, RI Chicago, IL Baton Rouge, LA San Francisco, CA Tallahassee, FL	Karen Natsios (registration) Justice Manning (content)	617-648-7810 513-569-7349 FTS 684-7349
Seminar	Immobilization Technologies at Hazardous Waste Sites	October 16-17, 1989 October 18-19, 1989 October 30-31, 1989 November 1-2, 1989 November 13-14, 1989 November 15-16, 1989 December 4-5, 1989 December 6-7, 1989 January 8-9, 1990 January 10-11, 1990	Chicago, IL Kansas City, MO Atlanta, GA New York, NY Boston, MA Philadelphia, PA Seattle, WA San Francisco, CA Dallas, TX Denver, CO	Peer Consultants (registration) Clarence Clemons (content)	513-252-1222 513-569-7358 FTS 684-7358

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